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<input type="checkbox"/>	L1	\$decaprenyl diphosphate near3 (synthase or synthatase)	38

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☐ 1. Document ID: EP 1123979 A1

L4: Entry 1 of 1

File: EPAB

Aug 16, 2001

PUB-NO: EP001123979A1

DOCUMENT-IDENTIFIER: EP 1123979 A1

TITLE: PROCESS FOR PRODUCING COENZYME Q 10?

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	RUOE	Drawn De
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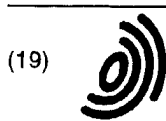
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(19)

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(11)

**EP 1 123 979 A1**

(12)

**EUROPEAN PATENT APPLICATION**

published in accordance with Art. 158(3) EPC

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**16.08.2001 Bulletin 2001/33**

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C12N 1/21, C12P 7/66**

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(30) Priority: **24.08.1999 JP 23756199**

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**(54) PROCESS FOR PRODUCING COENZYME Q 10?**

(57) The present invention has for its object to isolate a gene coding for the enzyme synthesizing coenzyme Q<sub>10</sub> side chain synthase from a fungal strain of the genus *Saitoella* and exploit it to advantage for the efficient microbial production of coenzyme Q<sub>10</sub>.

The present invention provides;

a DNA having the nucleotide sequence shown under SEQ ID NO:1;

a DNA having a nucleotide sequence derived from

the nucleotide sequence of SEQ ID NO:1 by deletion, addition, insertion and/or substitution of one or a plurality of nucleotides and coding for a protein having decaprenyl diphosphate synthase activity; a DNA which hybridizes with the DNA having the nucleotide sequence of SEQ ID NO:1 under stringent conditions and codes for a protein having decaprenyl diphosphate synthase activity.

**EP 1 123 979 A1**

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NEWS EXPRESS DECEMBER 28 CURRENT WINDOWS VERSION IS V7.00, CURRENT  
MACINTOSH VERSION IS V6.0b(ENG) AND V6.0Jb(JP),  
AND CURRENT DISCOVER FILE IS DATED 23 SEPTEMBER 2003  
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=> s decaprenyl diphosphate (3a) (synthase or synthatase)  
L1 87 DECAPRENYL DIPHOSPHATE (3A) (SYNTHASE OR SYNTHATASE)

=> s l1 and saitoella  
L2 3 L2 AND SAITOELLA

=> dup rem l2  
PROCESSING COMPLETED FOR L2  
L3 2 DUP REM L2 (1 DUPLICATE REMOVED)

=> d 1,2

L4 ANSWER 1 OF 2 HCAPLUS COPYRIGHT 2004 ACS on STN  
AN 2002:888927 HCAPLUS  
DN 137:380999  
TI DNA, cDNA and protein sequences of eukaryotic long-chain prenyl  
diphosphate synthase and their uses for biosynthesis of coenzyme Q9 and  
Q10  
IN Matsuda, Hideyuki; Kawamukai, Makoto; Yajima, Kazuyoshi  
PA Kaneka Corporation, Japan  
SO PCT Int. Appl., 64 pp.  
CODEN: PIXXD2  
DT Patent  
LA Japanese  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002092811	A1	20021121	WO 2002-JP4566	20020510
	W: CA, CZ, JP, NO, US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
PRAI	JP 2001-140977	A	20010511		
RE.CNT	10	THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD ALL CITATIONS AVAILABLE IN THE RE FORMAT			

L4 ANSWER 2 OF 2 BIOTECHDS COPYRIGHT 2004 THOMSON DERWENT/ISI on STN  
AN 2001-07777 BIOTECHDS  
TI DNA encoding a protein having \*\*\*decaprenyl\*\*\* - \*\*\*diphosphate\*\*\* -  
\*\*\*synthase\*\*\* activity and microorganism for producing coenzyme-Q10;  
production in Escherichia coli using plasmid pNTSai  
AU Matsuda H; Kawamukai M; Yajima K; Ikenaka Y; Hasegawa J; Takahashi S  
PA Kaneka  
LO Osaka, Japan.  
PI WO 2001014567 1 Mar 2001  
AI WO 2000-JP5659 24 Aug 2000  
PRAI JP 1999-237561 24 Aug 1999  
DT Patent  
LA Japanese

=> d 1,2 ab

L4 ANSWER 1 OF 2 HCAPLUS COPYRIGHT 2004 ACS on STN  
 AB This invention provides DNA, cDNA and protein sequences of long-chain prenyl diphosphate synthase from Schizosaccharomyces pombe, human and mouse. The invention also provides a process of prepn. of prenyl diphosphate synthase by expressing in E. coli. The recombinant prenyl diphosphate synthase can be used for biosynthesis of coenzymes such as Q9 and Q10.

L4 ANSWER 2 OF 2 BIOTECHDS COPYRIGHT 2004 THOMSON DERWENT/ISI on STN  
 AB DNA having a base sequence SEQ ID No:1, having a base sequence derived from a sequence from SEQ by deletion of bases and encoding a protein having \*\*\*decaprenyl\*\*\* - \*\*\*diphosphate\*\*\* - \*\*\*synthase\*\*\* (DDS) activity or being hybridizable with DNA with a SEQ ID NO:1 is claimed. Also claimed are: a protein with an amino acid protein sequence SEQ ID No:2 by deletion, insertion and substitution of 1 or more amino acids and having DDS activity; DNA encoding the above protein; vector (plasmid pNTSai) containing the above DNA; a host microorganism (Escherichia coli DH5-alpha FERM BP-6844) transformed with the above DNA and; a process for preparing coenzyme-Q10 using the above microorganism. The above can be used to produce high yields of coenzyme-Q10. (32pp)

=> dis his

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L1 87 S DECAPRENYL DIPHOSPHATE (3A) (SYNTHASE OR SYNTHATASE)  
 L2 3 S L1 AND SAITOELLA  
 L3 2 DUP REM L2 (1 DUPLICATE REMOVED)

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